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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,700	04/10/2001	Volker Kuhnel	33495	1771

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EXAMINER

BRINEY III, WALTER F

ART UNIT PAPER NUMBER

2615

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/829,700

Applicant(s)

KUHNEL ET AL.

Examiner

Walter F. Briney III

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-13 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishige et al. (US Patent 6,094,489).**

**Claim 1** is limited to “ a method for individualizing a hearing aid in adaptation to a loudness perception of an individual.” Ishige discloses a digital hearing aid and its hearing sense compensation/processing method. See Abstract. In operation, a gain G is determined based on measured loudness characteristics of a user and known loudness characteristics. Examples of these loudness characteristics are respectively graphed in figure 6 as lines I and N. The slope of line I represents “loudness perception parameters of the individual.” The fitting device 31 “measures and quantifies” this information before further processing. See column 9, lines 62-64, and column 10, lines 11-17. The slope of line N represents the “normal loudness perception parameters.” In determining the gain G, control section 23, in conjunction with elements 24, 25, 28 and 31, take a difference between the values ‘b’ and ‘a’. See column 10, lines 11-30 and 46-50. Clearly, the gain is then used in “adjusting the hearing aid.” It is noted that Ishige fails to discuss a weighted combination as recited, however, as shown below, this deficiency is overcome by an obvious modification.

The difference between ‘b’ and ‘a’ is graphically depicted in figure 6. Giving Ishige’s disclosure, it is inherent that determining the difference requires calculating the current loudness experienced by a person of normal hearing given the current analyzed

sound pressure level 'a' and normal loudness curve N. The calculated loudness is then mapped to a required sound pressure level 'b' that maintains normal perceived loudness for a user with a hearing impairment represented by line I. Mathematically applying the nomenclature of Ishige's equations 1, 2 and 3 to the above provides the following:

$$b = Y_i^{-1}(Y_n(a))$$

$$G = b - a = Y_i^{-1}(Y_n(a)) - a = (Y_n(a) + O_i) / A_i - a = (A_n * a - O_n + O_i) / A_i - a.$$

This formula reduces to:

$$G = a \{A_n * \alpha + [A_i * \beta]^{-1} / a - 1\}, \text{ where } \alpha = 1 / A_i \text{ and } \beta = 1 / (O_i - O_n).$$

The final form noted above comprises a combination of the "loudness perception parameters of the individual" ( $A_n$ ) weighted by "a first factor that is non-zero and non-unitary" ( $\alpha$ ) and "normal loudness perception parameters" weighted by "a second factor that is different from said first factor and is also non-zero and non-unitary" ( $\beta$ ). It is noted that the final form depicted supra is one of many mathematically equivalent functions.

It would have been obvious to of ordinary skill in the art at the time the invention to implement the abovementioned final form for determining gain and compensation. The motivation behind such a modification would have been that such a manner of correction would have established a mathematically equivalent compensation function for adjusting the hearing aid, as is evidenced in the above discussion.

**Claim 2** is limited in part to "the method as in claim 1," as covered by Ishige. As noted in the previous Non-Final Office Action filed 21 September 2005, Ishige

determines gain based on the loudness function of a normal person and a user and for each frequency band. Therefore, Ishige makes obvious all limitations of the claim.

### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

**2. Claims 3-13 are allowed.**

**Claims 3-13** are allowed over the cited prior art for at least the same reasons presented in the Non-Final Office Action filed 21 September 2005.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 and 2, filed 23 February 2006, have been considered but are moot in view of the new ground(s) of rejection. Please note that the new rejection of claim 1 is made to correct certain errors in the previous rejection, specifically a misinterpretation of how Ishige calculates gain (i.e. 'b' – 'a' does not equal the difference between one of equations 3-8 and equation 2).

### ***Conclusion***

The new grounds of rejection presented herein were not required by applicant's amendment, and therefore, this action is NON-FINAL.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB



**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**